

AMENDMENT AND PRESENTATION OF CLAIMS

Please replace all prior claims in the present application with the following claims, in which claims 1-2, 6, 10-11, and 15 are currently amended, and claims 19-20 are newly presented.

1. (Currently Amended) A method for accessing an instance of a recreatable object in a shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the method comprising the steps of:

locating, within the shorter-duration memory, a context structure associated with the call; locating an XREF pointers array based on data cached within the context structure; determining whether the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory; and if the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory, then following said pointer to locate said instance within said shorter-duration memory.

2. (Currently Amended) The method of Claim 1 wherein the step of locating an XREF pointers array based on data cached within the context structure comprises the steps of:

determining a hash code associated with a memory page in which the XREF reference located in the longer-duration memory is located; using at least a portion of the hash code as an index to locate an array entry within an array stored within the context structure; and if said array entry contains a pointer, then following said pointer stored in said array entry to locate said XREF pointers array.

3. (Original) The method of Claim 2 wherein:

the array is a power-of-two array; and

the portion of said hash code that is used as said index includes a particular number of bits of
said hash code.

4. (Original) The method of Claim 1 wherein:

the XREF pointers array does not include a pointer associated with said reference; and

the method further comprises the steps of

creating said instance by activating said recreatable object; and

storing a pointer to said instance in said XREF pointers array.

5. (Original) The method of Claim 2 wherein:

if said array entry does not contain a pointer, then creating said instance by activating said
recreatable object; and

storing a pointer to said instance in said array entry.

6. (Currently Amended) A method for accessing an instance of a recreatable object in
shorter-duration memory based on a reference located in a longer-duration memory, wherein the
shorter-duration memory is associated with a call, the method comprising the steps of:

when a class is activated, generating, within said shorter-duration memory, a class object
associated with the class;

storing, within said class object, data for locating instances of recreatable objects associated
with said class;

to dereference said reference located in the longer-duration memory, performing the steps of

determining that said reference located in a longer-duration memory is associated with said class; and
using said data within said class object to locate said instance of said recreatable object.

7. (Original) The method of Claim 6 wherein the step of storing, within said class object, data for locating instances is performed by storing, within said class object, a pointer to an XREF pointers array.

8. (Original) The method of Claim 7 wherein the step of using said data within object to locate said instance includes the steps of:

A
determining whether the XREF pointers array includes a pointer associated with said reference;

if the XREF pointers array includes a pointer associated with said reference, then following said pointer to locate said instance within said shorter-duration memory.

9. (Original) The method of Claim 8 wherein:

the XREF pointers array does not include a pointer associated with said reference; and
the method further comprises the steps of

creating said instance by activating said recreatable object; and
storing a pointer to said instance in said XREF pointers array.

10. (Currently Amended) A computer-readable medium carrying instructions for accessing an instance of a recreatable object in a shorter-duration memory based on a reference located in a

longer-duration memory, wherein the shorter-duration memory is associated with a call, the computer-readable medium comprising instructions for performing the steps of:

locating, within the shorter-duration memory, a context structure associated with the call;

locating an XREF pointers array based on data cached within the context structure;

determining whether the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory; and

if the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory, then following said pointer to locate said instance within said shorter-duration memory.

11. (Currently Amended) The computer-readable medium of Claim 10 wherein the step of locating an XREF pointers array based on data cached within the context structure comprises the steps of:

determining a hash code associated with a memory page in which the XREF reference located in the longer-duration memory is located;

using at least a portion of the hash code as an index to locate an array entry within an array stored within the context structure; and

if said array entry contains a pointer, then following said pointer stored in said array entry to locate said XREF pointers array.

12. (Original) The computer-readable medium of Claim 11 wherein:

the array is a power-of-two array; and

the portion of said hash code that is used as said index includes a particular number of bits of said hash code.

13. (Original) The computer-readable medium of Claim 10 wherein:

the XREF pointers array does not include a pointer associated with said reference; and
the computer-readable medium further comprises instructions for performing the steps of
creating said instance by activating said recreatable object; and
storing a pointer to said instance in said XREF pointers array.

14. (Original) The computer-readable medium of Claim 11 further comprising instructions
for performing the steps of:

if said array entry does not contain a pointer, then creating said instance by activating said
recreatable object; and
storing a pointer to said instance in said array entry.

15. (Currently Amended) A computer-readable medium carrying instructions for accessing
an instance of a recreatable object in shorter-duration memory based on a reference located in a
longer-duration memory, wherein the shorter-duration memory is associated with a call, the
computer-readable medium comprising instructions for performing the steps of:

when a class is activated, generating, within said shorter-duration memory, a class object
associated with the class;
storing, within said class object, data for locating instances of recreatable objects associated
with said class;
to dereference said reference located in the longer-duration memory, performing the steps of
determining that said reference located in the longer-duration memory is associated with
said class; and
using said data within said class object to locate said instance of said recreatable object.

16. (Original) The computer-readable medium of Claim 15 wherein the step of storing, within said class object, data for locating instances is performed by storing, within said class object, a pointer to an XREF pointers array.

17. (Original) The computer-readable medium of Claim 16 wherein the step of using said data within object to locate said instance includes the steps of:

determining whether the XREF pointers array includes a pointer associated with said reference;

if the XREF pointers array includes a pointer associated with said reference, then following said pointer to locate said instance within said shorter-duration memory.

18. (Original) The computer-readable medium of Claim 17 wherein:

the XREF pointers array does not include a pointer associated with said reference; and
the computer-readable medium further comprises instructions for performing the steps of
creating said instance by activating said recreatable object; and
storing a pointer to said instance in said XREF pointers array.

19. (New) The method of Claim 1 wherein the duration of the shorter-duration memory is
shorter than the duration of the longer-duration memory.

20. (New) The computer-readable medium of Claim 10 wherein the duration of the shorter-duration memory is shorter than the duration of the longer-duration memory.